Discrete Mathematics 46 (1983) 217–219
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BOOK ANNOUNCEMENTS

R.V. AMBARTZUMIAN, *Combinatorial Integral Geometry*, with Applications to Mathematical Stereology, edited with an Appendix by Adrian Baddeley, University of Cambridge (Wiley, Chichester–New York–Brisbane–Toronto–Singapore, 1982) 221 pp.

Editor's Note. Introduction. *Chapter 1: The Invariant Measure for Planes in Space.* Finite algebras and invariant imbedding. A bit of geometrical analysis. Wedges and Buffon rings. *Chapter 2: Lines in the Plane and Other Families of Curves.* Degeneration of wedges into needles. Non-invariant measures. Topological invariance; discoids and G-oids. Diophantine representation in the whole sphere. Riemann and spherical cabbages. *Chapter 3: Alternative Proofs in Two Dimensions.* Sylvester rings and Sylvester's garland. Extension of Crofton's theorem. Topological approach and the Gauss–Bonnet theorem. Uniqueness of Diophantine decompositions. *Chapter 4: Measures on Products of Line Spaces.* Buffon sets in G^k. Measures on the space of triangles. Non-random convex domains. *Chapter 5: Dimensions Three and Four, and Beyond.* Planes in space: from needles to wedges. Four dimensions: tethedra as tools for integration. Invariant imbeddings. *Chapter 6: Geometrical Inequalities and the Construction of Measures.* Pseudometrics in the plane. From plane to discoid. Products of line spaces. Other spaces. Extension outwards. *Chapter 7: Pleijel-Type Identities for Convex Domains.* Pleijel identities for discoids. Integrals over r. Integrals over E. *Chapter 8: Shadings of Convex Domains.* The main idea. Geometrical integration. A geometrical inequality—and a check. Application to black/white shadings. One special shading. *Chapter 9: An Application to Stereology of Polygon Processes.* Preliminaries. Mathematical stereology. Associated marked point processes: side length distribution. Vertex angle distribution. Mean perimeter length. Remarks on random polyhedron processes. *Chapter 10: An Application to Stereology of Ergodic Boolean Models in R^2.* Shadings of quadrilaterals. Summation over quadrilaterals. Ergodic random domain processes. Some integral geometry in the small. Justification by dominated convergence in the case of restricted curvature. Black-recurrence and exponentiality. *Conclusion.* The Buffon–Sylvester problem. Enumeration of atoms. r-Dimensional planes of R^n. Inequalities. Decompositions in general. Triangles. Essential inequalities. Random packing. Test intervals. Classes of equivalent matrices. *References. Appendix A: by Adrian Baddeley.* Introduction. Combinatorial aspects of integral geometry. Combinatorial integral geometry. Measures on G. Construction of measures. Directed lines. Higher dimensions and non-Euclidean spaces. Measures and measurements. Hilbert's fourth problem. References for Appendix A. *Appendix B: Stereology of Polyhedra: Numerical results by R.V. Ambartzumian* Tetrahedra. Right triangular prisms. Rectangular parallelepipeds. Right hexagonal prisms. *Index.*

Jack E. GRAVER and Mark E. WATKINS, *Combinatorics with Emphasis on the Theory of Graphs*, Graduate Text in Mathematics, No. 54 (Springer-Verlag, New York–Berlin–Heidelberg, 1977) 351 pp.

Authors' Preface. *Chapter 1: Finite Sets.* Conventions and Basic Notation. Selections and Partitions. Fundamentals of Enumeration. Systems. Parameters of Systems. *Chapter 2: Algebraic Structures on Finite Sets.* Vector Spaces of Finite Sets. Ordering. Connectedness and Components. The Spaces of a System. The Automorphism Groups of Systems. *Chapter* 3. *Multigraphs.* The Spaces of a Multigraph. Biconnectedness. Forests. Graphic Spaces. Planar Multigraphs. Euler's Formula. Kuratowski's Theorem. *Chapter 4: Networks.* Algebraic Preliminaries. The Flow Space. Max-Flow–Min-Cut. The Flow Algorithm. The Classical Form of Max-Flow–Min-Cut. The Vertex Form of Max-Flow–Min-Cut. Doubly-Capacitated Networks and Dilworth's Theorem. *Chapter 5: Matchings and Related Structures.* Matchings in Bipartite Graphs. 1-Factors. Coverings and Independent Sets in Graphs. Systems with Representatives. {0, 1}-Matrices. Enumerative Considerations. *Chapter 6: Separation and Connectivity in Multigraphs.* The Menger Theorem. Generalizations of the Menger